

Serial No. 09/722,338
Amendment Dated: July 29, 2004
Reply to Office Action dated Apr. 29, 2004

REMARKS / ARGUMENTS

Objections to Claims 1, 9, and 14

The Examiner contends that "[i]t is not clear, in Claims 1, 9, 14 what is meant by 'retransmission parameters.' Appropriate correction is required." Applicants point to at least page 4, lines 5-12 that make clear that such parameters can include the number of retransmission rounds and the number of retransmissions in each round. This is repeated in at least clause (b) of Claim 1 and provides a literal antecedent to the referenced claim language. Accordingly, no correction is believed to be required.

Rejection of Claims 1 – 17 under 35 USC 103(a)

The Examiner has replaced his earlier rejection under 35 USC 102(e) with a rejection under obviousness. Specifically, the outstanding rejection has been made by the Examiner under 35 USC 103(a) to reject Claims 1-17 as being unpatentable over U.S. Patent No. 6,477,150 to Maggenti et al. in view of U.S. Patent No. 6,438,723 to Kalliojärvi. Moreover, the Examiner contends that:

"Maggenti et al. substantially teaches that '... [Communication Manager] 218 may periodically retransmit AYT requests to any registered [Communication Device] which has not acknowledged receipt of the AYT.' (column 14, lines 13-15), '...The net itself will remain dormant until one or more members trigger the transmission of a PTT request. If CM 218 determines it can grant the PTT request message (i.e., the PTX message) (including performing any necessary arbitration...' (column 34, lines 54-58), '...retransmits a second PTT message using the same PTT message...' (column 30, lines 47, 48), and "...CD 202 may be preprogrammed with a group-list, which defines at least one net-address in which CD 202 is a member. CD 202 can later send a request to the top-level SIP server to update its group list.' (column 10, lines 59-62)."

The Examiner further contends that:

"Not specifically described in detail in Maggenti is the step of varying retransmission based on parameters such as round trip delay, time-out and counter means. However, Kalliojärvi, in an analogous art, discloses a

Serial No. 09/722,336
Amendment Dated: July 29, 2004
Reply to Office Action dated Apr. 29, 2004

hybrid ARQ wherein such techniques are described {See Kalliojärvi, Id., Figs. 5-6} Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the procedure in Maggenti by including therein round-trip delay and time-out means as taught by Kalliojärvi, because such modifications would provide the procedure disclosed in Maggenti with a technique ... to thereby improve data communications."

Applicants respectfully disagree. Specifically, Applicants submit that the instant invention is drawn to retransmission of packets within wireless communications. In contrast, the base reference to Maggenti et al. relied upon by the Examiner discloses a system and method for point-to-multipoint communications in a push-to-talk (PTT) manner. Specifically, Maggenti et al. discloses a point-to-multipoint method and system that includes a communication manager (CM) that arbitrates between multiple communications devices (CDs) to determine which CD is permitted to communicate with the other CDs at a given instance. Maggenti et al. does not discuss retransmission requests for packets, except as found at col. 22, line 66 - col. 23, line 3, but here, it is only in the context of multiple NAKs can be sent by the RLP, thus prompting retransmission of multiple copies of a lost frame. This is in direct contrast to the invention disclosed and claimed in the present application, where one or more copies of a lost packet are sent in response to a single retransmission request (NAK or ACK-based).

More importantly, the cited passages at column 14, lines 13-15 of Maggenti et al. that are relied upon by the Examiner refer to retransmission of an "are-you-there" (AYT) request from the CM to a CD. This is clearly an activation prompt, rather than a retransmission request as recited in each of Applicants' independent Claims 1, 9, and 14. It is clear that the further AYT request is not sent in response to a retransmission request, but is merely part of initializing the appropriate communication channels with members of a network. Nothing in Maggenti et al. discloses or suggests receiving a retransmission request for a packet having at least one available retransmission round and a number of available retransmissions as described and claimed in the present

Serial No. 09/722,338
Amendment Dated: July 29, 2004
Reply to Office Action dated Apr. 29, 2004

application. Moreover, in lieu of retransmission requests to a non-responding CD, the device of Maggenti et al. is designed to time-out and thus removes a non-responding CD from the net's list of active participants (see column 18, lines 15-29). Accordingly, Applicants submit that retransmission requests in fact teach away from the invention disclosed within Maggenti et al. Alternatively stated, the device of Maggenti et al. teaches always from retransmission requests as required in the present invention. Moreover, any combination with a mechanism that uses retransmission requests (e.g., Kalliojärvi) would contravene the teachings of Maggenti et al.

Applicants respectfully submit that Maggenti et al. and Kalliojärvi are non-analogous art in that Maggenti et al. promotes time-outs and dormancy over retransmissions (see at least column 17, lines 55-57 and column 18, lines 11-16) which is believed to be a feature inherent to PTT transmissions where only one user has the floor to talk. On the other hand, Kalliojärvi focuses on the reliability of a channel-based packet transmission system. While both references deal with packet data transmissions, their similarities diverge greatly thereafter. Accordingly, Applicants urge the Examiner to consider the divergent focus and incompatibility of each of these references with one another. Applicants submit that there is no motivation or suggestion to combine these references as elucidated by the Examiner because such combination would contravene the intent of the device of Maggenti et al. and render it inoperable.

The remaining passages cited by the Examiner with regard to Maggenti et al. refer to a PTT request message. As suggested above, a PTT message is not a retransmission request as recited in the claims of the present application. Applicants submit that nothing within Maggenti et al. nor within Kalliojärvi suggests the retransmission scheme as claimed in at least independent Claims 1, 9, and 14 and to modify the PTT system of Maggenti et al. in light of Kalliojärvi is hindsight reconstruction that would simply not be a workable combination.

Serial No. 09/722,338
Amendment Dated: July 29, 2004
Reply to Office Action dated Apr. 29, 2004

Accordingly, Applicants submit that the method for retransmitting packets as recited in Claim 1 is not shown or fairly suggested by Maggenti et al. alone or in combination with Kalliojärvi. As Claims 2-8 depend, either directly or indirectly, from Claim 1, it is submitted that they too are not shown or fairly suggested by the cited prior art in any combination. Withdrawal of the rejections to claim 1 - 8 is therefore respectfully requested.

Claim 9 recites a radio link protocol engine for providing retransmission parameters for a packet in response to an automatic retransmission request, comprising: a buffer for storing retransmission parameters for a packet having a predetermined per packet quality of service; a radio link protocol automatic retransmission request engine for determining the retransmission parameters for the packet as a function of the predetermined per packet quality of service (QoS) and a wireless link quality of service.

The Examiner contends that:

"Maggenti et al. teaches that '...a dormant CD 202 may buffer media traffic...' (column 14, line 5) and '....SIP call-signaling PPP frames exchanged between a cellular-based CD 202 and a base station 216 are encapsulated with the Radio Link Protocol (RLP), a well known wireless protocol for transmitting data over-the-air.' Column 21, lines 25-29)."

Applicants respectfully submit that Maggenti et al. clearly does not disclose a buffer for storage of retransmission parameters for a packet, nor does it disclose an RLP automatic retransmission request (ARQ) engine that determines the retransmission parameters based on per packet QoS and wireless link QoS. Further, Applicants respectfully submit that nothing in Kalliojärvi shows or suggests any combination with Maggenti et al. that would form the instant invention as claimed. While Applicants do not dispute the prior existence of buffers and RLP, it is wholly unclear how the above-cited passages relate to the particular implementation of an RLP engine recited in Claim 9, or how they render Claim 9 obvious. Applicants

Serial No. 09/722,338
Amendment Dated: July 29, 2004
Reply to Office Action dated Apr. 29, 2004

therefore request withdrawal of the rejection to Claim 9, and its dependent Claims 10-13.

Claim 14 recites a wireless access network, comprising: a scheduler for scheduling a packet, having a predetermined per packet quality of service, for transmission over a radio link having a predetermined wireless link quality of service; a radio link protocol engine for providing retransmission parameters for the packet in response to an automatic retransmission request, the radio link protocol engine including a buffer for storing retransmission parameters for the packet; and a radio link protocol automatic retransmission request engine for determining the retransmission parameters for the packet as a function of the predetermined per packet quality of service and the predetermined wireless link quality of service.

The Examiner further contends:

"Maggenti et al. teaches that '[t]he choice of CM might instead be determined dynamically, based on proximity to the majority of net participants (determined using available position location techniques), available quality of service on a service providers inter-system network, and other factors., and Maggentu (sic) et al discloses that '[t]he systems using... Radios' (column 1, line 17) well known (sic) and °... have been used ... in order to communicate scheduling information...' (column 1, lines 18, 19), and 'in the case of CDs 202, 204, and 206, the request is transmitted over-the-air to one or more base stations 216. MSC 220 comprises a well-known Inter-Working Function (IWF) (not shown) for processing data packets, including the request, ...' (column 6, lines 52-56)."

The first passage at column 1, line 17 upon which the Examiner relies relates to choice of a CM based on the enumerated factors, including QoS of the service provider's inter-system network. Applicants respectfully request clarification by the Examiner as it is quite unclear to Applicants, even in light of Kalliojärvi, how this relates to a packet scheduler for scheduling packets based on their *per packet* QoS. Further, Applicants respectfully request clarification by the Examiner as it is not clear how the second passage cited by the Examiner buttresses the obviousness rejection,

Serial No. 09/722,338
Amendment Dated: July 29, 2004
Reply to Office Action dated Apr. 29, 2004

as the passage at column 1, lines 16-20 in actuality reads, with underlining added for emphasis, "...dispatch systems using Land Mobile Radios (LMRs) have been used in trucks, taxis, buses and other vehicles in order to communicate scheduling information between a central dispatch center and one or more corresponding fleet vehicles."

Applicants submit that this passage is clearly not related to packet scheduling in a wireless network and it is not readily apparent how Kalliojärvi purports to cure this lack of relevance. Accordingly, Applicants sincerely request clarification.

The third passage cited by the Examiner relates to wireless transmission of a PTT session request by a CD. As mentioned above, Kalliojärvi fails to suggest any combination with a PTT system. There is nothing in Maggenti et al. that discloses an RLP engine that provides retransmission parameters for a packet in response to an ARQ, nor is there any disclosure in Maggenti et al. of an RLP engine having a buffer that stores retransmission parameters for the packet, and an RLP ARQ engine that determines the retransmission parameters for the packet as a function of the predetermined per packet QoS and the predetermined wireless link QoS.

Therefore, Applicants submit that Claim 14, and its dependent Claims 15-17, are not shown or fairly suggested by Maggenti et al. alone or in combination with Kalliojärvi. Withdrawal of the rejections related thereto is therefore respectfully requested.

The Examiner has also rejected Claims 1-17 under 35 USC 103(a) by application of Maggenti et al. in view of U.S. Patent No. 6,473,399 to Johansson et al. The Examiner uses the identical motivation "to thereby improve data communications" to support this combination. Applicants respectfully disagree and submit that the arguments made above, and incorporated herein, with regard to the combination of Maggenti et al. and Kalliojärvi equally apply to the combination of Maggenti et al. and Johansson et al. In sum, the device of Johansson et al. fails to support any combination with the PTT device of Maggenti et al. Johansson et al. is channel-based

Serial No. 09/722,338
Amendment Dated: July 29, 2004
Reply to Office Action dated Apr. 29, 2004

and designed to improve the reliability of communication of packet data between two communications units on a dedicated channel. Applicants submit that PTT is a non-analogous art in multiple communications units use the same channel frequency and only one unit at a time can broadcast. Radio transmissions the likes of Johansson et al and Kalliojärvi is characterized by a one-to-one form of communication whereas PTT transmission is characterized by a one-to-many form of communication. Accordingly, Applicants believe that the obviousness rejection of Maggenti et al. in view of Johansson et al. fails to show or suggest any proper motivation for such combination.

Rejection of Claim 18 under 35 USC 103(a)

Further, the Examiner has rejected Claim 18 under 35 USC 103(a) as being obvious in view the combination of Maggenti et al. and Kalliojärvi in view of U.S. Patent No. 6,618,375 to Rezaiifar et al.

With respect to the rejection of Claim 18 as being obvious in view of Maggenti et al., Kalliojärvi, and Rezaiifar et al., Applicants reiterate the comments above, and further submits that the passages quoted from Rezaiifar et al. merely acknowledge the prior existence of ARQs and RLP, which is acknowledged by Applicants. However, such passages do not disclose or suggest a retransmission counter, as recited in Claim 18. Accordingly, withdrawal of the obviousness rejection to Claim 18 is requested.

The Examiner has also applied Rezaiifar et al. to the combination of Maggenti et al. in view of Johansson et al. Applicants incorporate the arguments made above and respectfully submit that Rezaiifar et al. fails to cure the defective combination of Maggenti et al. in view of Johansson et al. Accordingly, withdrawal of the obviousness rejection to Claim 18 is requested.

Serial No. 09/722,338
Amendment Dated: July 29, 2004
Reply to Office Action dated Apr. 29, 2004

CONCLUSION

Applicants again submit that none of Kalliojärvi, Johansson et al., or Rezaifar et al. are combinable with the PTT device disclosed by Maggenti et al. and, therefore, the related combinations are not shown or fairly suggested in any way by the references. The Examiner's contention that motivation exists in the very broad sense to "improve data communications" is not sufficient to motivate oneself to combine a PTT solution with a non-PTT solution because to do so here would render the aggregate device inoperable.

Applicants submit that the application is in condition for allowance, and favorable action to that end is respectfully requested.

Respectfully submitted,
ZHANG, H. et al.

By 

L. Anne Kinsman
Reg. No. 45,291

BORDEN LADNER GERVAIS LLP
World Exchange Plaza
100 Queen Street, Suite 1100
Ottawa ON K1P 1J9 CANADA

Tel.: (613) 787-3736
Fax: (613) 787-3558
Email: akinsman@blgcanada.com

ALK/DRH/djr